

CLAIMS

1. A fuel cell disassembly method of disassembling a fuel cell where a pair of separators arranged across an electrode assembly are bonded to each other via an adhesive layer, said
5 fuel cell disassembly method comprising:

a separation facilitating step of causing external heating means to apply heat to the adhesive layer, so as to soften or melt the adhesive layer and thereby facilitate
10 separation of the pair of separators from each other.

2. A fuel cell disassembly method in accordance with claim 1, wherein said separation facilitating step locates the external heating means to be in contact with or close to at least one of the separators.

15 3. A fuel cell disassembly method in accordance with either one of claims 1 and 2, wherein said separation facilitating step locates the external heating means to cover over a gap between the pair of separators.

4. A fuel cell disassembly method in accordance with any
20 one of claims 1 through 3, wherein said separation facilitating step locates the external heating means along the adhesive layer.

5. A fuel cell disassembly method in accordance with any one of claims 1 through 4, wherein said separation facilitating
25 step causes the external heating means to apply heat to the adhesive layer to be not lower than a softening temperature

of the adhesive layer but lower than an upper temperature limit of the electrode assembly.

6. A fuel cell disassembly method in accordance with any one of claims 1 through 5, wherein said separation facilitating
5 step causes the external heating means to apply heat to the adhesive layer, while an external force is applied by external force application means in a direction of mutually parting the pair of separators.

7. A fuel cell disassembly method in accordance with
10 claim 6, wherein the external force application means in said separation facilitating step comprises a wedge-like member pressed in a direction of insertion into a gap between the pair of separators.

8. A fuel cell disassembly method in accordance with
15 claim 7, wherein said separation facilitating step inserts the external force application means into the gap between the pair of separators, while the external force application means is heated by the external heating means.

9. A fuel cell disassembly method in accordance with
20 claim 6, wherein the external force application means in said separation facilitating step applies the external force to an extension of one of the separators to separate one of the separators from the other of the separators.

10. A fuel cell disassembly method in accordance with
25 any one of claims 1 through 5, wherein said separation facilitating step causes the external heating means to apply

heat to the adhesive layer while applying an external force in a direction of mutually parting the pair of separators.

11. A fuel cell disassembly method in accordance with any one of claims 1 through 10, wherein the adhesive layer is
5 arranged around periphery of the electrode assembly and has a sealing function to prevent leakage of a gas fed to the electrode assembly.

12. A fuel cell disassembly method in accordance with any one of claims 1 through 11, wherein plurality of the fuel
10 cells are layered to form a fuel cell stack, and

said separation facilitating step causes the external heating means to additionally apply heat to an inter-cell adhesive layer that bonds adjoining fuel cells to each other directly or indirectly via an intermediate in the fuel cell
15 stack, so as to soften or melt the inter-cell adhesive layer and thereby facilitate separation of the adjoining fuel cells.

13. A fuel cell stack disassembly method of disassembling a fuel cell stack having an inter-cell adhesive layer that bonds adjoining fuel cells to each other directly or indirectly via
20 an intermediate, said fuel cell stack disassembly method comprising:

a separation facilitating step of causing external heating means to apply heat to the inter-cell adhesive layer, so as to soften or melt the inter-cell adhesive layer and
25 thereby facilitate separation of the adjoining fuel cells.

14. A fuel cell disassembly method of disassembling a

fuel cell where a pair of separators arranged across an electrode assembly are bonded to each other via an adhesive layer, said fuel cell disassembly method comprising:

a separation facilitating step of causing external heat removal means to remove heat from the adhesive layer, so as to contract the adhesive layer and thereby facilitate separation of the pair of separators from each other.

15 15. A fuel cell disassembly method in accordance with claim 14, wherein said separation facilitating step locates the external heat removal means to be in contact with or close to at least one of the separators.

16. A fuel cell disassembly method in accordance with either one of claims 14 and 15, wherein said separation facilitating step locates the external heat removal means to cover over a gap between the pair of separators.

17. A fuel cell disassembly method in accordance with any one of claims 14 through 16, wherein said separation facilitating step locates the external heat removal means along the adhesive layer.

20 18. A fuel cell disassembly method in accordance with any one of claims 14 through 17, wherein said separation facilitating step causes the external heat removal means to remove heat from the adhesive layer, while an external force is applied by external force application means in a direction of mutually parting the pair of separators.

19. A fuel cell disassembly method in accordance with

claim 18, wherein the external force application means in said separation facilitating step comprises a wedge-like member pressed in a direction of insertion into a gap between the pair of separators.

5 20. A fuel cell disassembly method in accordance with claim 19, wherein said separation facilitating step inserts the external force application means into the gap between the pair of separators, while the external force application means is cooled down by the external heat removal means.

10 21. A fuel cell disassembly method in accordance with claim 18, wherein the external force application means in said separation facilitating step applies the external force to an extension of one of the separators to separate one of the separators from the other of the separators.

15 22. A fuel cell disassembly method in accordance with any one of claims 14 through 17, wherein said separation facilitating step causes the external heat removal means to remove heat from the adhesive layer while applying an external force in a direction of mutually parting the pair of separators.

20 23. A fuel cell disassembly method in accordance with any one of claims 14 through 22, wherein the adhesive layer is arranged around periphery of the electrode assembly and has a sealing function to prevent leakage of a gas fed to the electrode assembly.

25 24. A fuel cell disassembly method in accordance with any one of claims 14 through 23, wherein plurality of the fuel

cells are layered to form a fuel cell stack, and

said separation facilitating step causes the external heat removal means to additionally remove heat from an inter-cell adhesive layer that bonds adjoining fuel cells to each other directly or indirectly via an intermediate in the fuel cell stack, so as to contract the inter-cell adhesive layer and thereby facilitate separation of the adjoining fuel cells.

25. A fuel cell stack disassembly method of disassembling a fuel cell stack having an inter-cell adhesive layer that bonds adjoining fuel cells to each other directly or indirectly via an intermediate, said fuel cell stack disassembly method comprising:

a separation facilitating step of causing external heat removal means to remove heat from the inter-cell adhesive layer, so as to contract the inter-cell adhesive layer and thereby facilitate separation of the adjoining fuel cells.